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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,012	10/24/2003	Alex C. Toy	1023-288US01	9367

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EXAMINER	
KAHELIN, MICHAEL WILLIAM	
ART UNIT	**PAPER NUMBER**
3762	

NOTIFICATION DATE	DELIVERY MODE
02/21/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@ssiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/693,012	TOY ET AL.	
	Examiner	Art Unit	
	MICHAEL KAHELIN	3762	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-27,29-43,45-51 and 53-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-27,29-43,45-51 and 53-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 10, 14, 17-19, 27, 31, 34-36, 43, 47, 50, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Lebel et al. (US 2003/0065370, hereinafter "Lebel").

3. In regards to claims 1, 18 and 35, Lebel discloses a programmer comprising a wireless telemetry circuit (76), a boost converter to convert a battery voltage to an operating voltage for the programmer (734), and a control circuit to inhibit pulse skipping by the boost converter based on a level of the battery voltage (par. 0245). The battery voltage (VAA) falling below a threshold deactivates the boost converter, thusly meeting the limitation of "pulse skipping" because no pulses are provided. Further, the device inhibits pulse skipping (provides pulses by activating the boost converter) when the battery voltage is above a threshold (par. 0245; provided by the VAA signal).

4. In regards to claims 2, 19 and 36, the Examiner is considering the "operating voltage" to be the "reset 556" signal (par. 0245) because it is a voltage at least indirectly

provided by the boost converter (because the device is powered by the boost converter). As such, pulse skipping is activated when the operating voltage exceeds a reference voltage ("high", per par. 0245) value.

5. In regards to claims 10, 27 and 43, the programmer comprises an antenna within the housing (par. 0088).

6. In regards to claims 14, 31 and 47, the device comprises a battery source (par. 0234).

7. In regards to claims 17, 34 and 50, the operating voltage is approximately 3.2V (par. 0235 and 0238).

8. In regards to claim 59, the device comprises a battery voltage monitor (par. 0245).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-10, 12-27, 29-43, 45-51, and 53-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotowski et al. (US 6,055,168, hereinafter "Kotowski") in view of Lebel. Kotowski discloses the essential features of the claimed invention including the following:

12. In regards to claims 1, 3, 10, 14, 16, 18, 20, 27, 31, 33, 35, 37, 43, 47, 49, 51, 55, 57, and 59, Kotowski discloses a boost converter to convert a battery voltage to an operating voltage and a control circuit to inhibit pulse skipping by the boost converter based on a level of the battery voltage (col. 3, line 19-col. 4, line 8). Since the input (battery) voltage is used to select the gain based on a number of thresholds (col. 3, lines 60-65), and the gain is used to inhibit pulse skipping, the disclosed pulse skipping is inhibited when a level of the battery voltage exceeds a threshold voltage. Kotowski further discloses that pulse skipping is activated when the operating voltage exceeds a threshold and the boost converter is a fixed frequency switching mode boost converter (col. 3, line 30). Kotowski does not disclose that this voltage converter is used in a handheld programmer having an internal antenna in combination with a neurostimulator. Lebel teaches of a handheld programmer having an internal antenna in combination with a neurostimulator that utilizes a boost converter, such as the one disclosed by Kotowski, to efficiently provide the voltages needed to operate a device that is small and utilizes off-the-shelf batteries. Therefore, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify Kotowski's invention by providing the voltage converter to a handheld programmer having an internal antenna in combination with a neurostimulator that utilizes a boost converter to provide the predictable results of efficiently providing the voltages needed to operate a device that is small and utilizes off-the-shelf batteries.

13. In regards to claims 2, 19, and 36, the boost converter activates pulse skipping when the operating voltage exceeds a threshold (col. 3, line 30).

14. In regards to claim 4, 21 and 38, a transistor couples the battery to the boost converter (Fig. 5, element 10). Because the battery voltage enforces the minimum gain, which is determined by the transistor-based switching of 10, Kotowski meets the claim language.

15. In regards to claims 13, 30, 46, and 54, pulse skipping is inhibited by limiting the level of the battery voltage applied to the boost converter (by switching per Fig. 5).

16. In regards to claims 5-9, 22-26, and 39-42, Kotowski's modified invention including modifying the voltage supplied to the boost converter based on the battery voltage, but does not disclose a comparator to actuate the transistor, or that the transistor is a MOSFET/MOSFET pair that transmits the battery voltage less a body diode/resistor voltage/external diode drop to the boost converter. It is well known in the electronic arts to utilize comparators to determine when values exceed thresholds with common off-the-shelf parts and to utilize MOSFET/MOSFET pairs that transmit the battery voltage less a body diode/resistor voltage/external diode drop to provide reliable

switching with common off-the-shelf parts. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Kotowski's invention by providing a comparator to provide the predictable result of determining when the input value exceeds a threshold with common off-the-shelf parts and to utilize a MOSFET/MOSFET pair that transmits the battery voltage less a body diode/resistor voltage/external diode drop to provide the predictable result of providing reliable switching with common off-the-shelf parts.

17. In regards to claims 15, 32, 48, and 56, Kotowski discloses the essential features of the claimed invention including modifying the gain of the boost converter based on the battery voltage (col. 3, line 60), but does not explicitly disclose utilizing two or more AA, AAA, C, or D batteries. However, it is well known in the art to provide portable devices with two or more AA, AAA, C, or D batteries to power various devices with readily available power sources. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Kotowski's invention by providing the device with two or more AA, AAA, C, or D batteries to provide the predictable result of powering various devices with readily available power sources.

18. In regards to claims 12, 17, 29, 34, 45, 50, 53, and 58, Kotowski's modified invention discloses the claimed invention but does not disclose expressly the claimed voltage ranges. It would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the voltage converter as taught by Kotowski with the claimed ranges because applicant has not disclosed that these ranges provide an advantage, are used for a particular purpose, or solve a stated problem. One of

ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the voltage converter as taught by Kotowski because both devices efficiently convert an input voltage to an output operational voltage. Therefore, it would have been an obvious matter of design choice to modify Kotowsi's invention to obtain the invention as specified in the claims.

Response to Arguments

19. Applicant's arguments filed 12/10/2007 have been fully considered but they are not persuasive. Applicant argued that Lebel discloses a boost converter that is activated to provide pulses when a battery exceeds a threshold, not inhibiting pulse skipping when the threshold is exceeded. The Examiner agrees that Lebel discloses a boost converter that is activated to provide pulses when a battery exceeds a threshold. Providing pulses is "inhibit[ing] pulse skipping," as claimed because "providing" is the same as the double-negative "inhibiting skipping." Applicant further asserted the conclusion that "deactivating an up-converter does not amount to pulse skipping," and that deactivating the up-converter indefinitely is not skipping. However, these assertions place limitations on the terms that are neither claimed, nor provided in a "special definition" in the specification. As such, they will be afforded their common usage, which Lebel's invention meets. For instance, "skipping" does not require a later resuming of activity (e.g., "She skipped the last hour of the movie.").

20. Applicant further argued that Lebel fails to disclose activating pulse skipping based on an operating voltage because the high reset signal is output from the

comparator. However, the comparator, microprocessor, and all other componentry of the system are powered by the converted battery voltage. Further, this is a reference voltage (the reference being "high"). Although the specific voltage may or may not be disclosed, this digital/binary signal has a "reference voltage" because it is either "high" or "low." There is inherently a "reference voltage" that differentiates the two states.

21. Applicant further argued that Kotowski fails to disclose "inhibit[ing] pulse skipping by the boost converter when a level of the battery voltage exceeds a threshold value" because the battery voltage is used to manipulate the minimum gain and the minimum gain is not used for pulse skipping. The Examiner agrees that the battery voltage is used to manipulate the minimum gain. However, this manipulation of the minimum gain (albeit indirectly) "inhibit[s] pulse skipping" because skipping causes a decrease in the gain (col. 3, line 52). When the actual gain reaches the minimum gain, pulse skipping will be increased because the gain cannot be further reduced past the minimum gain (i.e., more than three skip signals can occur). As the minimum gain (Gmin) is modified by various thresholds for the input voltage (col. 3, lines 60-65), Kotowski meets the claim language. Please note that the plain meaning of "inhibit" does not necessarily mean "prohibit" (but merely limit in some way), and "exceed" does not necessarily mean "be greater than," (but merely "go beyond limits," thus including a lower limit). The same analysis applies to claims 4, 21, and 38, inasmuch as modifying the minimum gain (via transistors) is inhibiting pulse skipping. Further, Kotowski discloses limiting the level of voltage inputted into converter 310 by limiting the level of voltage inputted to each of elements A, B, and C in Figure 4 (thus adjusting the gain).

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL KAHELIN whose telephone number is (571)272-8688. The examiner can normally be reached on M-F, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MWK
2/12/08

GEORGE R. EVANISKO
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2/12/08